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Strategic Intelligence Monitor on Personal Health Systems Phase 3 (SIMPHS3)

*CARTS (Ireland)
Case Study Report*

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Abstract

The Community Assessment of Risk Assessment and Treatment Strategy (CARTS) programme is defined by the investigators as a risk intervention strategy that aims to screen, triage, assess and treat to reduce the risk of frailty and three adverse outcomes (AO) – institutionalisation, hospitalisation and death – in community dwelling older adults. The programme uses two instruments, Risk Instrument for Screening in the Community (RISC) and the Community Assessment of Risk Instrument (CARI). The RISC screens individuals to identify concerns in three domains, mental state, activities of daily living (ADLs) and medical state. The RISC then triages people into low, medium and high risk and describes the factors that are causing risk. The CARI is a more comprehensive assessment tool which also aims to identify the factors that create risk. The programme has been developed by researchers at the Centre for Gerontology and Rehabilitation in University College Cork.

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Preface

The Strategic Intelligence Monitor on Personal Health Systems (SIMPHS) research started in 2009 with the analysis of the market for Remote Patient Monitoring and Treatment (RMT) within Personal Health Systems (PHS). This approach was complemented in a second phase (SIMPHS2) with the analysis of the demand side, focusing on needs, demands and experiences made with PHS by healthcare producing units (e.g. hospitals, primary care centres), healthcare professionals, healthcare authorities and patients amongst others.

Building on the lessons learnt from SIMPHS2 as well as on the European Innovation Partnership on Active and Healthy Ageing initiative, SIMPHS3 aims to explore the factors that lead to successful deployment of integrated care and independent living, and define best operational practices and guidelines for further deployment in Europe. This case study report is one of a series of case studies developed to achieve these objectives.

The outcomes of SIMPHS2 are presented in a series of public reports discussing the role of governance, innovation and impact assessment in enabling integrated care deployment. In addition, through the qualitative analysis of 27 Telehealth, Telecare and Integrated Care projects implemented across 20 regions in eight European countries investigated in SIMPHS2, eight facilitators have been identified, based on Suter's ten key principles for successful health systems integration.

The eight main facilitators identified among these as necessary for successful deployment and adoption of telehealth, telecare and integrated care in European regions are:

- Reorganisation of services,
- Patient focus,
- Governance mechanisms,
- Interoperable information systems,
- Policy commitment,
- Engaged professionals
- National investments and funding programmes, and
- Incentives and financing.

These eight facilitators have guided the analysis of the cases studied in SIMPHS3 and a graphical representation with arrows whose length represents the relative importance of each facilitator is presented in each case study.

In addition to the above facilitators analysed in each case report, a specific section is dedicated to the analysis of care integration. It should be noted that the definition of vertical and horizontal integration used in this research is taken from the scientific literature in the field of integrated care¹ and differs from the one mentioned in the European Innovation Partnership on Active and Healthy Ageing Strategic Implementation Plan². We define horizontal integration as the situation where similar organisations/units at the same level join together (e.g. two hospitals) and vertical integration as the combination of different organizations/units at different level (e.g. hospital, primary care and social care).

¹ Kodner, D. (2009). All together now A conceptual Exploration of Integrated Care.

² http://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/steering-group/operational_plan.pdf (page 27)

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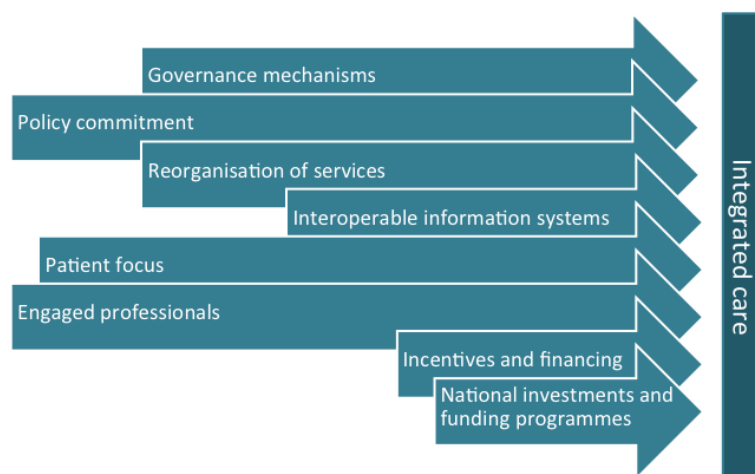
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Case outlook

The Community Assessment of Risk Assessment and Treatment Strategy (CARTS) programme is defined by the investigators as a risk intervention strategy that aims to screen, triage, assess and treat to reduce the risk of frailty and three adverse outcomes (AO) - institutionalisation, hospitalisation and death - in community dwelling older adults. The programme uses two instruments, the Risk Instrument for Screening in the Community (RISC), formerly known as the Community Assessment of Risk Screening Tool (CARST), and the Community Assessment of Risk Instrument (CARI), formerly known as Community Assessment of Risk Tool (CART). The RISC screens individuals to identify concerns in three domains - mental state, activities of daily living (ADLs) and medical state. It then triages people into low, medium and high risk and describes the factors that are causing risk. The CARI is a more comprehensive assessment tool which also aims to identify the factors that create risk. The programme has been developed by researchers at the Centre for Gerontology and Rehabilitation in University College Cork. It comprises four steps:

1. Externally validate the Community Assessment of Risk Instrument (CARI) in a large community sample (community dwelling older adults);
2. Develop a risk profile in this community sample, describing those at risk and the issues that create risk;
3. Measure the risk of AO, and stratify subjects according to their risk level and
4. Develop a tailored intervention strategy in order to: match subjects to specific levels or types of risk and to use targeted assessments and interventions to mitigate risk and AO; integrate and restructure existing community resources, including home help, day hospitals and respite scheme; prioritise limited resources, re-allocating them according to risk and perform cost-benefit and quality of life analysis for the risk intervention programme.

The first three steps of the programme have been developed and even though the tailored integrated care intervention has not been implemented yet, socio-economic benefits are expected by all the stakeholders involved including local authorities, politicians and healthcare professionals. These benefits will contribute to the sustainability of primary healthcare and improve quality of life. The following figure summarises the main facilitators of the programme.



1 Background

1.1 The Irish health care system

Healthcare in the Republic of Ireland is delivered by a centrally-administered national health service (Health Service Executive - HSE) financed mostly from general taxation. The Irish healthcare has historically had similarities with the British NHS, although it should be noted that in its existing form, the HSE model relies slightly more on mixed provision and funding (multi-tier system of healthcare). People on lower or middle incomes sometimes struggle to access the care they need, while people with private voluntary health insurance get preferential access to care in state hospitals or to higher-quality treatment in the separate private hospital sector (Bidgood, 2013). In this context, the Irish Longitudinal Study on Ageing (TILDA) revealed the following figures regarding the ageing population in Ireland:

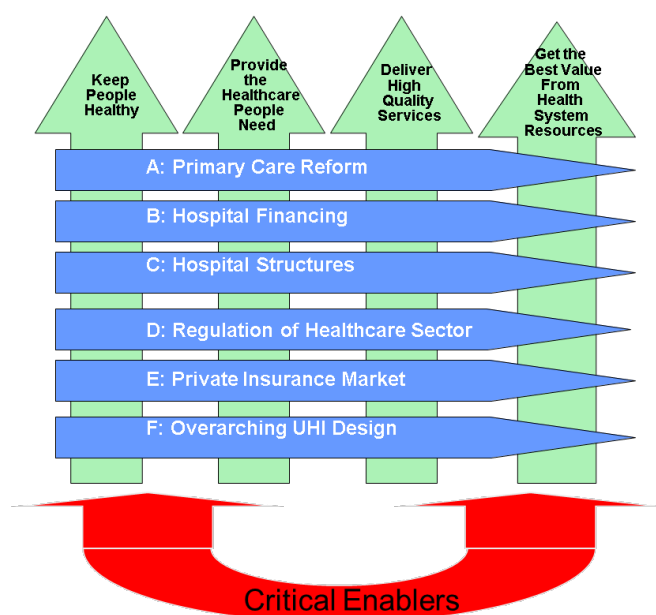
- Nearly all (97%) of those aged 80 or over have medical cards that exempt them from paying fees for primary care and hospital care. This compares with 91% for people in their 70s and 30% of those in their 50s.
- Nearly 60% of people between 50 and 69 have private medical insurance, a figure which drops to 46% for those in their 70s and 32% for those over 80.
- The likelihood of being a user of primary care rises slightly with age, but is similar for all those over 70.
- The likelihood of having a hospital admission is similar for different ages over 60, but the length of stay increases slightly with age. People over 80 are lower users of outpatient services than those in their 60s and 70s.
- The prevalence of disabilities rises with age from less than 10% of those between 50 and 64 to nearly 30% of those over 75.
- People with impairments in activities of daily living (ADL) and instrumental activities of daily living (IADL) receive on average 118 hours of help per month.
- The most common primary helper for this group is the recipients' spouse, older adults contributing to a large extent to the care of older adults.
- Only 3.5% of people over 50 receive state provided home help services.
- Of those with both ADL and IADL impairments, 12% do not receive any formal or informal help and these people constitute a potentially very vulnerable group.

The 2004 Health Act put the system through a major reorganisation, abolishing the various health boards and centralising control of Ireland's health service under a single national authority called the Health Service Executive (HSE), which was established in January 2005. This change was intended to make the system more primary and community care driven, backed-up by improved access to specialist, acute and long-term care services (Bidgood, 2013). The Irish HSE is "accountable directly to the Minister of Health". As stated in the official report "The Path to Universal Healthcare - Preliminary Paper on Universal Health Insurance" (2013), the Government has been committed since 2011 to a single-tier health service, supported by universal health insurance, which provides equal access based on need, not ability to pay, and which delivers the best health outcomes for Irish citizens. Universal Health Insurance (UHI) is essentially a plan to convert Ireland's several-tier, centralised tax-financed system, into a continental-style 'Bismarckian' social health insurance system with a main tier of universal compulsory health insurance and competing providers. Therefore, everyone will be insured for a standard package of primary and

hospital care services, including mental health services. Insurance will be provided under a multi-payer insurer model with no distinction between “public” and “private” patients (Bidgood, 2013). The system will be founded on principles of social solidarity, encompassing the fundamental tenets of financial protection, open enrolment, lifetime cover and community rating.

In March 2013, the Department of Health released ‘The Path to Universal Healthcare: Preliminary Paper on Universal Health Insurance’, outlining six work streams that were contributing to UHI implementation (primary care reform, hospital financing, hospital structures, regulation of the healthcare sector, the private insurance market and overarching UHI design).

Figure 1: Work streams under Universal Health Insurance



Source: An Roinn Sláinte (2013)

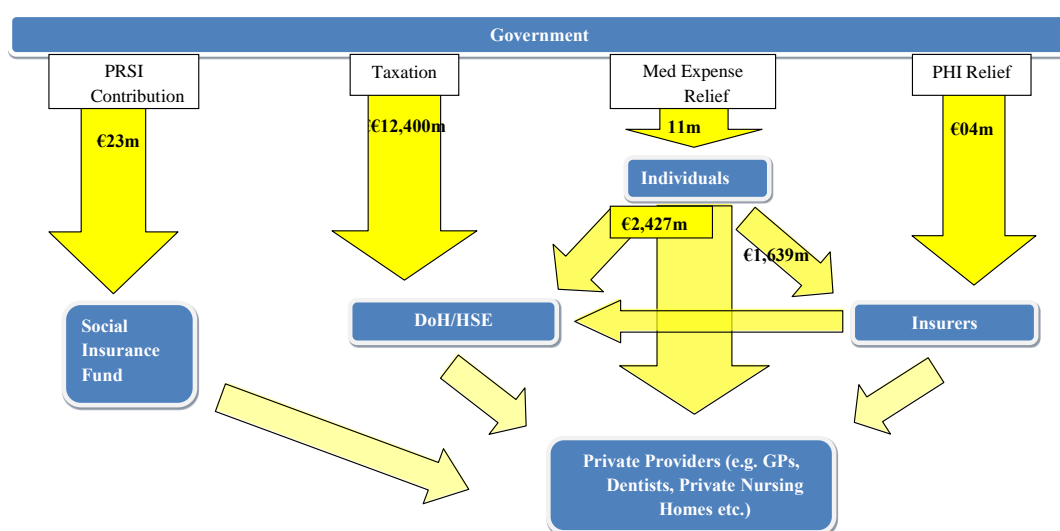
As part of this reform, it is mentioned that the HSE is developing integrated chronic disease management programmes to improve patient access and care in an integrated manner across service settings, resulting in best health outcomes, enhanced clinical decision making and the most effective use of resources. Guidelines are being developed for the following priority programmes relevant to primary care: Stroke, Heart Failure, Asthma, Diabetes and COPD.

The main source of funding for the health system is general taxation (80%). Additional payments by households are made for: private insurance, GP consultations, medications, specialist consultations and hospital services. There are a range of waivers and subsidies from government, that reduce or eliminate these costs for particular sections of the population. There is no entitlement to free care at any level for any member of the population. At the moment the system is based on a two tier approach: General Practitioners (primary care service providers) and Specialists (Hospitals). Furthermore, social care is under the Social Care Division within the HSE. This division has been established to support on-going service requirements of older people and people with disabilities, including Nursing Home Support, to support and maintain people living at home, or in their own community, and to promote their independence and lifestyle choices as far as possible.

Under the on-going reform, the Government has decided to retain general taxation as the core mechanism for raising resources. Government allocations to the UHI system will take account of the 'efficient market rate', the numbers qualifying for financial support and the average amounts of financial support payable having regard to income levels/ means-test criteria etc. Allocations to the UHI system will be centrally pooled in the National Insurance Fund. The Fund will have responsibility for directly financing certain UHI services and for managing financial support payments to insurers (An Roinn Sláinte, 2014).

The White Paper on Universal Health Insurance (2014) demonstrates how the Government supports healthcare through four different channels, namely (1) through the direct provision of funding to the Department of Health and HSE (€12,400m), (2) through the payment of tax relief at source on private health insurance premiums (€404m), (3) through the social insurance system (treatment benefit scheme - €23m) and (4) by reimbursing individuals directly in respect of out of pocket medical expenses (€131m).

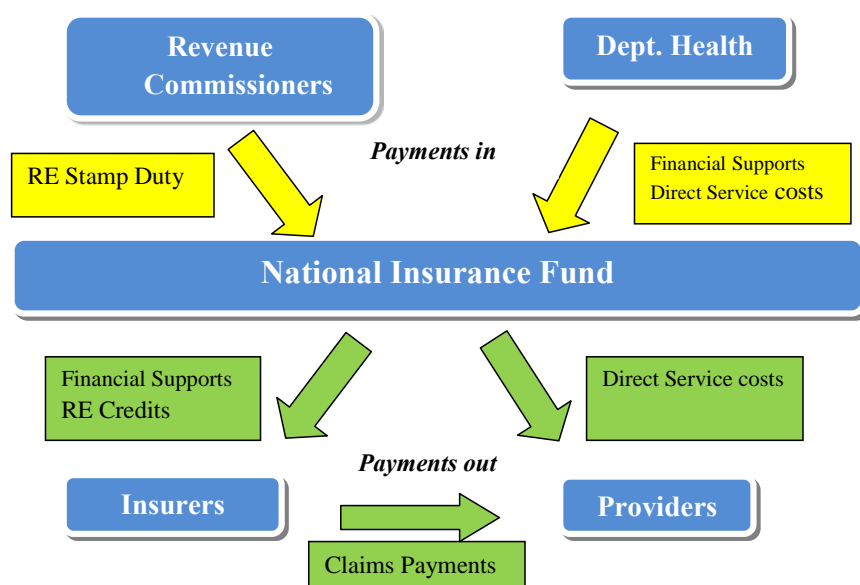
Figure 2: Macro funding flows across the Irish Health System



Source: An Roinn Sláinte (2014)

The White Paper (2014) claimed that the HSE is both a provider and a purchaser of services. As a provider of health services, it obtains the vast majority of its funding directly from the Exchequer but also receives monies in respect of statutory charges from individuals and private health insurers. As a purchaser of services, it makes payments to private providers (e.g. GPs, nursing homes), as do several other purchasers: individuals, insurers and the Department of Social Protection. Finally, Figure 2, illustrates how individuals, while paying €1.6bn in net health insurance premiums, actually pay considerably more in direct, out of pocket payments for public and private health services (€2,427m). Thus, all State funding is collected by the same, single authority, the Revenue Commissioners, is ultimately pooled into the same, single entity, the National Insurance Fund, and is allocated by the same, single entity, the National Insurance Fund.

Figure 3: Management of UHI Funding flows



Source: An Roinn Sláinte (2014)

1.2 Cork and Kerry South-West Region, Ireland

The South West Region of Ireland operates throughout the Administrative NUTS III area, comprising all of County Cork, Cork City and County Kerry. This area is one of Ireland's wealthiest regions. A large cohort of high value industries, particularly in the Life Science sector, endows the region with some of the highest output levels per worker in the country. The South West has a strong industrial and services sector and the region has benefited from foreign direct investment in the ICT, life sciences and pharmaceutical sectors. Table 1, summarises the main indicators relating to health.

Table 1: General information about Counties of Cork, Kerry and Louth

Geographical coverage km ²	13,071
Inhabitants per km ²	664,534
Number of inhabitants	785,300
Life expectancy at birth years	76.8 males – 81.6 females
Regional GDP (2012) billion €	20.2
Regional GDP per inhabitant (2012) €/inhabitants	25,625
General Practitioners /1.000 inhabitants (2010)	0.57
Specialists /1.000 inhabitants (2010)	3.75
Regional Budget for Health services management (2013) billion €	1,85
Regional health care budget € per inhabitants (2013)	2,357
Health care professionals / 100.000 inhabitants	432
Hospital beds (2012)	1,730
Hospital beds/1.000 habitants (2012)	2.2
The mortality rate due to chronic disease is as follow: 86% cancer disease; 8% cardiovascular disease; 6% COPD	

1.3 The CARTS case

The Community Assessment of Risk Assessment and Treatment Strategy (CARTS) programme is defined by its leaders as a risk intervention strategy that aims to screen, triage, assess and treat to reduce risk of frailty and three adverse outcomes (AO) - institutionalisation, hospitalisation and death - in community dwelling older adults. The programme uses two instruments, the Risk Instrument for Screening in the Community (RISC), formerly known as the Community Assessment of Risk Screening Tool (CARST) and the Community Assessment of Risk Instrument (CARI), formerly known as Community Assessment of Risk Tool (CART). The RISC is a short screening tool (2-3 minutes) that is used to identify individuals who are at greater risk of the three AOs, nursing home placement, hospitalisation and/or death, in the following year. It also identifies factors that create risk in three domains - mental state, activities of daily living (ADLs) and medical state. The RISC then triages people into low, medium and high risk, and describes the factors that are causing risk. Subjects identified as being at increased risk (moderate or high risk), receive a more comprehensive assessment using the CARI tool, to identify reversible and treatable issues. Targeted evidence-based interventions are then used to ameliorate risk. Follow-up assessment, in an iterative process, re-evaluates risk and assesses the effectiveness of interventions and treatments. Repeated "screening" is used to assess the effectiveness of the interventions and provides an automatic built-in quality assurance step, in the programme.

The CARTS research programme, developed by researchers at the Centre for Gerontology and Rehabilitation, in University College Cork, comprises the following steps:

- Externally validate the Community Assessment of Risk Instrument (CARI) in a large community sample (community dwelling older adults).
- Develop a risk profile in this community sample, describing those at risk and the issues that create risk.
- Measure the risk of AO, and stratify subjects according to their risk level.
- Develop a tailored intervention strategy that (1) matches subjects to specific levels or types of risk, to targeted assessments and interventions to mitigate risk and AO; (2) integrate and restructure existing community resources, including home help, day hospitals and respite scheme; (3) prioritize limited resources, diverting them according to risk and (4) perform cost-benefit and quality of life analysis for the risk intervention programme.

This initiative falls under the European Innovation Partnership on Active and Healthy Ageing A3 Action Group, 'Prevention of functional decline and frailty' by allowing early identification of community dwellers living at risk. CARTS allows prompt response and initiation of appropriate management to prevent functional and cognitive decline, providing protocols and training pathways. Furthermore, in conjunction with ICT, CARTS allows new assistive technologies to be trialled and evaluated in clinical practice.

It is worth pointing out that the experts interviewed stated that to date they have not identified any screening instrument or healthcare pathway that quantifies or manages the risk of multiple outcomes for frail, community dwelling, older adults, while accounting for the role of the support (caregiver) network, a key element in maintaining individuals at risk, in their own home.

So the CARTS could be considered as the first of its kind, as it aims to identify, quantify, stratify and manage risk of adverse outcomes among community dwelling, older adults.

The RISC instrument has already been used to investigate the prevalence of frailty-associated risk factors in a cohort of 803 community dwelling older adults in Cork City and County in Southern Ireland. The Health Service Executive of Ireland has funded the pilot study and an additional funding application has been made to extend the study regionally.

2 Integrated care analysis

2.1 Dimensions

CARTS leaders defined integrated care as comprehensive strategy, which must involve all links in the healthcare chain from the micro-level (patient) to the macro-level (policy maker) to ensure that the system is functional, relevant and sustainable. This strategy should involve all health and social care actors (multidisciplinary) using top down or bottom up approaches from the policy maker to the patient. In the CARTS case, the main target groups of the integrated care services are vulnerable subgroups (e.g. the frail elderly and persons with disabilities) and patients with complex illnesses (e.g. chronic conditions, some types of cancer). Thus the main pathologies tackled are those related with chronic disease, cognitive impairment, frailty and comorbidities. Furthermore, the services do not just focus on care and cure but also on life style and disease prevention. The approach taken by CARTS emphasises chronic disease management, health and social services integration and homecare management.

The integration in CARTS occurs at organisational, service delivery and clinical level. Firstly some back-office and support functions are coordinated across all units involved (functional integration). This also implies relations among different organisations (organisational integration) and professionals within and across all organisational levels to coordinate the services in a single/seamless process across time, place, and discipline (service/clinical integration).

According to the experts consulted, all the stakeholders involved in CARTS share the mission, work values and organisational/professional culture (normative integration), supported by aligned policies and incentives at organisational level (systemic integration). This level of integration would facilitate both vertical and horizontal integration, which involves the combination of different organisations/units and professionals in the continuum of care (e.g. hospital, community health centre, home care agency and nursing home).

2.2 Impact

The impact has yet to be determined but the experts consulted are expecting socio-economic benefits, which will contribute to the sustainability of primary healthcare and improve quality of life. They also stressed that integrated care should be sustainable, patient-centred, accessible and of benefit to all. These expected outcomes are envisaged by all the stakeholders involved, including local authorities, politicians and healthcare professionals.

Preliminary outcome data from an assessment of 806 community dwelling older adults, in Cork City and County in Southern Ireland, screened in 2012, shows that the prevalence of AO was significantly higher among those rated high risk compared to those rated low risk. In particular, the six-month institutionalisation rate was 33% for those at high risk

compared to 10% for those at medium risk and 1% for those at low risk. Hospitalisations rates are about three times higher for those at high risk than for those at low risk. These data which are currently being collected and analysed will be presented in a publication, currently under review.

As mentioned in the description of the case, the last phase of the CARTS programme foresees a tailored intervention strategy whereby individuals at moderate or high risk will be matched and randomised to receive “normal care” (control group) or rapid referral to the most appropriate services to assess and treat the issues that cause risk (intervention group). Evidence-based assessments and interventions, specifically targeted at the issues that are causing risk, will be used in the intervention group. All elements of the programme will be costed to determine if the interventions are cost effective. Furthermore, reduction of average length of stay, planned and unplanned admissions, emergency visits and bed-days reduction, are expected in the intervention group.

2.3 Drivers and barriers

The existence of inter-professionals teams across the continuum of care and the strong, focused, diverse governance, represented by all stakeholders are perceived as the main drivers pushing the CARTS programme. Specialists, general practitioners, nurses and social workers have been involved in the development of the programme. The involvement of these professionals in the earliest stages of the programme is perceived as a guarantee to ensure the continuum of care. In fact, this would also facilitate the re-organisation of health services provision, leapfrogging possible barriers related to professional engagement in the envisaged intervention (e.g. on grounds of increased workload).

The CARTS programme is also aligned with the on-going reform of the health system so the leaders of the initiative perceive the support of policy-makers as an important facilitator. Indeed, the CARTS programme itself could be considered as an enabler of the health system reform. In this regard, service funding and incentives are considered key aspects for the intervention phase of the CARTS programme. Furthermore, funding mechanisms promoting inter-professional teamwork are an important element to overcome possible gaps between the different tiers of care.

Nevertheless, the experts consulted emphasised the importance of national investments and funding programmes to ensure adequate resources for sustainable change and up-front costs, especially during the foreseen intervention phase. Furthermore, CARTS leaders are aware of the tensions that the integrated care approach can cause among the different health professionals and different health providers if there is no innovation in reimbursement models and no common outcome oriented incentives schemes for care managers, healthcare and social care professionals involved. These are perceived as the main barriers, which may hamper the full potential for the deployment and/or impact of the initiative.

2.4 Organisation, health professional and patients

The CARTS programme was developed after an extensive literature review and consultation in focus groups with public health nurses (PHNs), geriatricians, physiotherapists, occupational therapists, social workers and discharge planners. An iterative process was used, over one year, to further develop and refine the tool. PHNs were involved throughout its development, providing feedback to refine the screening and assessment tool. Literature

reviews, development and refinement of the RISC, CARI and CARTS prototypes, an education programme and training manual were completed.

As mentioned earlier, the CARI is a quick, pre-screen tool (completed in 2–3 minutes) used by health care workers to identify individuals at risk for AO based on the presence or absence of risk in relation to three domains: mental state, ADLs and medical state. The health care worker registers the ability of the caregiver network (including formal and informal caregivers and the type of services provided to the individuals) to manage the concern and grades the risk of each AO (nursing home placement, hospitalisation or death) from one (minimal/rare) to five (extreme/certain).

The RISC can screen large numbers of subjects quickly and efficiently. Trained healthcare professionals, typically community nurses, general practitioners (GPs), PHNs or other trained health care workers, familiar with the subject, can complete it. If the health care worker is not familiar with the patient, then the RISC should not be used.

The CARI provides a more detailed assessment of the three domains. It is completed for subjects who score medium or high risk on the RISC. Its structure is similar to that of the RISC. The three core domains are further subdivided into sections and issues. For example, in the domain *Mental State*, there are four sections: *Thinking and Reasoning*, *Behaviours*, *Psychiatric and Others*. Each section is further subdivided into issues. For example *Thinking and Reasoning* is divided into two issues, *Cognition* and *Insight and Executive Function*. Concerns with each issue are graded in severity, from mild to severe. The ability of care networks to manage these concerns is scored. Risk is scored again, as with CARI, so that risk equates to the severity of the concern in the context of each caregiver network. Finally, based upon the above assessment, a Global Risk Score (GRS), from 1 to 5, is selected depending on the likelihood of an AO (institutionalisation, hospitalisation or death), occurring in the next year.

Administration and scoring guidelines are available for both the RISC and CARI. PHNs, trained in the administration of the instruments, can score community dwelling older adults under their care. Risk factors are identified and subjects triaged into different risk levels. Subjects at high risk receive the CARI and are fast tracked for targeted assessments and interventions to mitigate these risks.

Those at lower levels of risk are triaged to receive health promotion and preventative educational measures. The goal of early interventions is to promote independence, improve function, prevent further functional decline and delay or prevent hospitalisation, institutionalisation and/or death.

It is worth mentioning that the programme is co-ordinated by a university research team in conjunction with community healthcare professionals, clinicians and hospital staff through a top down/bottom up approach (stimulating learning culture and continuous improvement) involving all parties in the healthcare chain (day hospital; acute hospital and primary care) from policy makers to patients and including training and education to implement the programme as well as strategies to engage patients.

2.5 Information and Communication Technologies

All the individuals interviewed stated that to date the ICT component is very limited. However, the CARI tool will be used as an outcome measure³ as part of PERSSILAA (FP7-610359). This project, which started on 30 January 2014, aims to develop and validate a new service model, to screen for and prevent frailty in community dwelling older adults, integrating nutrition, physical and cognitive function. More specifically, PERSSILAA aims to develop a multimodal service model, focusing on nutrition, physical and cognitive function, and supported by an interoperable ICT service infrastructure and clinical decision support systems. This interoperable technological platform will be developed in line with the universAAL platform (developed in another European project) and will have the capability to be connected to the EHR system in place in each country.

This platform will support the three services' modules (nutrition, cognitive, and physical activities) and computational methods to perform knowledge extraction, pattern recognition, prediction of actions to be anticipated, classification, automatic detection of changes in behaviour, and inference of personal context. Finally, a gamification⁴ layer will be also developed so as to integrate performance indicators for healthy behaviours, decision support based on individual goals, personalised feedback and the enhancement of social engagement.

2.6 Governance

As already mentioned, the last step of the CARTS programme will comprise a tailored intervention based on the scores assigned to each patient screened. The intervention has not been implemented yet, but it foresees that individuals at high risk will be fast tracked to mitigate these risks, while those at lower levels of risk will be triaged to receive health promotion and preventative educational measures. In the case of Ireland, the intervention will be grounded within the current health system reform. The Irish Government recently published "The Path to Universal Healthcare White Paper on Universal Health Insurance" (2014) committed to ending the unfair, unequal and inefficient two-tier health system and to introducing a single-tier system, supported by universal health insurance, which:

- delivers proactive, integrated care at the lowest level of complexity that is safe, timely, efficient and as close to home as possible
- provides equal access based on need rather than ability to pay
- provides choice for the consumer in relation to who insures them
- drives the wider 'whole of Government' approach to health in all policies, and
- delivers true value for the Irish people.

Even though the governance model of the CARTS programme intervention has not been developed yet, the leaders of the initiative have understood and acknowledged the importance of having such a model in place. They emphasise that engaging all stakeholders is a must for the initiative to deliver its full potential and make an impact. As mentioned before, the CARTS programme was developed in its early stages through extensive consultation in focus groups, involving public health nurses (PHNs), geriatricians,

³ See <http://www.collage-ireland.eu/initiatives/specific-action-group-members/c2/>

⁴ Gamification is the use of game thinking and game mechanics in non-game contexts to engage users in solving problems <http://en.wikipedia.org/wiki/Gamification>

physiotherapists, occupational therapists, social workers and discharge planners. The governance model to be set up in the implementation phase should support these professionals in working together across the continuum of care by providing a clear framework and incentives to promote coordination across the different tiers and levels of care.

2.7 Organisational processes

In line with the Irish health system transformation, the CARTS initiative pushes service re-organisation to ensure (1) cooperation between tiers of care; (2) cooperation between health and social care and (3) access to a care continuum with multiple points of access. This implies that physicians are the gateway to integrated healthcare delivery systems and nurses play a pivotal role scoring community dwelling older adults under their care. Furthermore, CARTS fosters a patient-centred philosophy, focusing on patients' needs, providing them with self-management support methods and allowing them to benefit from integrated care. The detailed organisational process of the intervention needs to be developed once the intervention had been designed. Most likely, it would imply changes in how general practitioners, nurses and social care personnel working on the different providers, organise their practice within standardised and proactive preventive approach based upon a screening tool, personalised care pathways and performance assessment tool. It would integrate care across sectors, connecting the community, family doctors and specialty clinics to respond quickly and appropriately to patients' and caregivers' needs.

In addition, the leaders of the programme foresee that the results of the screening tool will be provided to the patient. The patient will be informed of the results of the screen. Patient (if competent) will be asked if he/she wants a family member/caregiver to be involved in developing the care plan. If the patient consents – family member/caregiver will be involved. If not, they won't. That patient's caregiver will be informed of the result only with the patient's consent. The patient and caregiver will be involved in attempts to eliminate the risks and will participate in all the decisions.

2.8 Reimbursement model and economic flow

The CARTS programme receives multi-source funding, directly from the HSE (Irish health department) and indirectly through Atlantic Philanthropies. However because the programme is still a research initiative, the services are not reimbursed. The experts consulted expect that National (e.g. Department of Health) and local authorities, national research funding bodies such as the Health Research Board (HRB) and EU funding will cover the intervention in the future. As underlined before, the CARTS initiative is aligned with the current Irish health system transformation process, thus the programme may also benefit from such a reorganisation.

3 Transferability

All the respondents stated that the CARTS initiative could be transferred to any region in Europe, so long as institutional and organisational barriers are overcome. The CARI tool is currently being used as an outcome measure in the PERSSILAA FP7 project in conjunction

with other partners in the EU, who are very active in the European Innovation Partnership on Active and Healthy Ageing.

The screening tool is easy to administer and it is not culturally sensitive so it can be integrated into any health care system. However, the transferability costs and the level of customisation are considered high. Interviewees stressed that to implement the programme and build capacity it is important to have the support at all levels in the healthcare chain and a consultation process with all key stakeholders from patients to healthcare professionals, government and policy makers to roll out the programme in an effective and efficient manner. Engagement with all stakeholders from micro-level (patient) to meso-level (healthcare professionals) to macro-level (policy makers) is considered as compulsory.

4 Conclusions

The CARTS programme aims to screen, triage, assess and treat to reduce risk of frailty and, three adverse outcomes (AO) - institutionalisation, hospitalisation and death - in community dwelling older adults. The programme uses two instruments, the Risk Instrument for Screening in the Community (RISC) and the Community Assessment of Risk Instrument (CARI), a more comprehensive assessment tool to identify those factors that create risk. The programme has already validated the tools; developed a risk profile in a community sample from Cork and Kerry South-West Region and measured the risk of AO, stratifying individuals according to their risk levels. However, the last step, a tailored intervention strategy, is still under development.

The programme is co-ordinated by a university research team in conjunction with community healthcare professionals, clinicians and hospital staff through a top down/bottom up approach involving all the stakeholders from policy makers to patients. CARTS represents a paradigm shift in clinical assessment, going beyond the traditional assessment process, merging the concepts of rapid screening with single assessment tools, involving health professionals, social workers, patient and caregivers within the care process. CARTS assesses and describes each individual's problems, the ability of their caregiver network to manage the problems, and describes gaps or deficiencies called the "care deficit".

CARTS delivers comprehensive screening, triage, assessment and treatment through a "global 360° assessment" process. It aims to increase functional independence, improve quality of life, delay and or prevent disability, and optimise the use of scarce resources, using reliable, valid and evidence-based tools. Both tools - RISC and CARI - have their own administration and scoring guidelines. Thus, PHNs, trained in the administration of the instruments, can score community dwelling older adults under their care. Risk factors are then identified and subjects triaged into different risk levels. Individuals at high risk receive the CARI and are fast tracked for targeted assessments and interventions to mitigate these risks. Those individuals at lower levels of risk are triaged to receive health promotion and preventative educational measures. The goal of early interventions is to promote independence, improve function, prevent further functional decline and delay or prevent hospitalisation, institutionalisation and/or death.

The CARTS programme envisages the provision of clinical and economic benefits by clearly identifying issues that put individuals at risk, implementing interventions to target specific risks, and measuring the effectiveness of these interventions to reduce risk. In this respect,

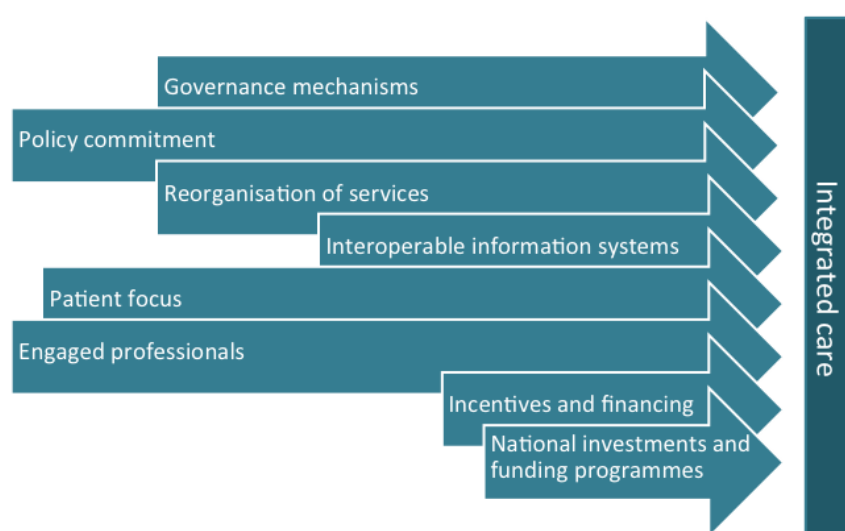
the integration through the CARTS intervention would occur at organisational level, service delivery level and clinical level, contributing to vertical and horizontal integration.

The main facilitators of this initiative are policy commitment, engaged professionals and patient focus. On the one hand, it is important to emphasise that the CARTS programme has been co-funded by the HSE and is grounded in the current Irish health system transformation process, which aims to provide proactive, integrated care at the lowest level of complexity that is safe, timely, efficient and as close to home as possible. Therefore, policy leaders' awareness and their support for this initiative can act as a potential enabler of the health system reform. Nevertheless, this support does not mean that the national investment and funding programme will be guaranteed in the future for the CARTS programme. In addition, the incentives and financing issues related to the intervention stage have not been solved yet, and the leaders of the programme foresee them as potential barriers to be overcome if there is no change in the current schemes. Thus, new incentives and financing mechanisms would be needed to push forward the CARTS intervention deployment.

On the other hand, engaged professionals have acted as the main facilitators of the programme. All the professionals involved in the care process have been participating in the programme since the beginning to build consensus on the definitions of the tools and how to use them in the care practice. This consensus may facilitate the implementation of the intervention phase, especially if this intervention includes the re-organisation of health and social care services, including vertical and horizontal integration.

Lastly, another important facilitator has been the involvement of patients and caregivers, demonstrating the importance the programme gives to their needs. This fosters a patient-centred philosophy, also providing patients with self-management support methods and allowing them to benefit from integrated care. Thus, patients' demands could push integrated care into the policy agenda.

Figure 4: CARTS Programme Integrated care facilitators



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